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with much information collected by the makers, will help to extend the knowledge of the chronometer, its errors, and their causes.

The temperature has been found from day to day during the expedition by means of an uncompensated chronometer, whose rate is affected about 6 sec. a day for 1° Fahr., and the application of these corrections is now being proceeded with.

The observations for latitude with the altazimuth, and with the transit instrument, in the prime vertical, are reduced.

The reduction of the observations on *Juno*, with the heliometer, is delayed until the meridian observations of the stars of comparison are completed, till the zone of stars observed for absolute value of the scale, and temperature co-efficient, has been remeasured, and till the extension of the division errors up to 2° distance is finished, as well as a redetermination of the errors of the screw of the reading microscope.

All these determinations are being pushed on as rapidly as possible. The reduction of the *Venus* heliometer measures is also delayed for the same purpose.

A redetermination of the screw of Airy's D.I. micrometer, used on *Venus* by Dr. Copeland, will be concluded before the reduction of those observations.

The instrument for measuring the photographs of the Transit is now almost complete, and the investigation of the errors of its scales and microscopes will be undertaken as soon as it is erected.

The photographs have been found to bear a magnifying power of 10 diameters well; and some will bear 20 with advantage.

Dun Echt, 1875, *Nov.* 12.

On the Error of the Tabular Place of Venus during the Transit of December 8, 1874. By Colonel Tennant, R.E.

(*From a Letter to E. Dunkin, Esq., Honorary Secretary.*)

I have been waiting till I should have something definite to say about the error of the place of *Venus* during the Transit, though I have long seen that there must be some mistake in Mr. Hind's estimate of the accuracy of M. Le Verrier's Tables. I have now completed the reduction of the altazimuth observations with the following result:

$$\text{Correction to } (\text{R.A. } ♀) - (\text{R.A. } \odot) = +4''\cdot47 - 0''\cdot071\, dL - 0\cdot989\, d\pi$$

$$\text{,, } (\text{N.P.D. } ♀) - (\text{N.P.D. } \odot) = +2''\cdot24 - 0''\cdot017\, dL - 2\cdot629\, d\pi$$

The longitude has been assumed as $5^h\ 11^m\ 31^s\cdot00$ E. which turns out to be exactly what Mr. Pogson makes from signals we

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have interchanged; but, of course, the longitude of Madras must be determined by telegraph, and then there will be some correction, and I may vary the amount by a few hundredths of a second of time from small corrections which have not been included by Mr. Pogson.

If the terms for longitude and solar parallax (which, by-the-bye, has been assumed as $8''{\cdot}93$, log.$=0{\cdot}95085$) be left out, then the probable error of the R.A is $\pm\ 0''{\cdot}312$, and of N.P.D. $\pm\ 0''{\cdot}443$.

Roorkee, October 14, 1875.

On an Old Drawing of the Sun. Translation from a Letter from Signor Capello, Director of the Observatory at Lisbon, to Dr. De La Rue.

I take the liberty of sending you a photographic copy of an allegorical plate representing the Sun, by Sheiner and Kircher, published at Rome in 1635.

I do not know to what work the plate belongs. I have not met with it in the *Rosa Ursina*, nor in the other works of Sheiner or Kircher.

Looking at this plate, one would be tempted to believe that the observers in question were already acquainted with the Protuberances and the Photosphere.

The clouds or fumarols all round the solar disk may very well represent the Protuberances, and the series of little tongues of fire may also very well represent the Photosphere. At any rate, it is an extraordinary coincidence, for both of them are quite recent discoveries.

Drawings of Mars and Jupiter, made with the 26-inch Equatoreal of the United States Naval Observatory.[*]

(*Communicated by Rear-Admiral C. H. Davis, U.S. N. Supt.*)

I.

These drawings were made with coloured chalk crayons on ordinary crayon paper in the following way. A circle three inches in diameter was first drawn in lead pencil on a small piece of the crayon paper, and this was secured to a small board, which was convenient to hold in the hand. The Washington mean time of beginning the drawing was (usually) noted to the

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[*] The drawings are preserved, and may be inspected in the Library of the Society.—Ed.

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